REMARKS

Claims 1-5 and 7-18 are pending, with claims 1, 8, 13 and 18 being in independent form.

Independent claims 1, 8, 13 and 18 have been amended to clarify the claimed invention. Support for the amendments to claims 1, 8, 13 and 18 may be found, inter alia, in the specification at page 11, lines 17-22, page 12, line 15 through page 14, line 8, and page 15, lines 3-14. Further support for the amendments to claims 1, 8, 13 and 18 may be found, inter alia, in Figs. 2A and 2B.

Applicants maintain that no new matter and no new issues are presented by this Amendment. Accordingly, Applicants respectfully request that this Amendment be entered.

Drawings

The October 18, 2002 Office Action stated that the drawings were objected to because FIG. 11 purportedly is not labeled as prior art.

Applicants respectfully point out that Figs. 11A-11C, as filed, are labeled "PRIOR ART".

The October 18, 2002 Office Action also stated that proposed drawing corrections or corrected drawings in response to the drawing objections indicated in the October 2, 2000 Office Action are required.

A set of substitute drawings (Figs. 1A through 18B), with informalities removed, is submitted herewith as Exhibit C attached hereto.

Rejections under 35 U.S.C. §112

Claims 8-12 were rejected under 35 U.S.C. §112, first paragraph, as based on a disclosure which is not enabling. Claims 1-5 and 7-17

were rejected under 35 U.S.C. §112, second paragraph, as allegedly indefinite.

The nonenablement rejection appears to be grounded on the basis that claims 8-12 cover embodiments which do not include features which are purportedly essential to operation of the claimed invention (i.e., here, connection between an information track and the phase pit is purported to be essential to the optical information recording medium) and therefore are inoperative. The indefiniteness rejection seems to be grounded on similar basis, i.e. the application as filed only discloses embodiments which include certain specified features which are critical to the claimed invention.

The U.S. Court of Appeal for the Federal Circuit has consistently held that when a claim covers inoperable embodiments, the claim is not invalid or unpatentable as long as the claim covers substantial embodiments which are operable [see, for example, Exxon Research and Engineering Company v. United States, 265 F.3d 1371, 1382 (Fed. Cir. 2001), a copy of which is enclosed herewith].

Here, each of independent claims 1, 8, 13 and 18 uses the term "comprising" which indicates that the optical information recording medium recited in the claim may include additional features. Thus, for example, claim 8 covers embodiments in which there is a connection between an information track and a phase pit, which is operative and is fully enabled by the application as filed. Under the applicable law, the claims are sufficiently enabled and definite, and no amendments thereto are necessary.

Prior art rejections

Claims 1, 18, 7, 8 and 13 were rejected under 35 U.S.C. §102(b)

or §102(b) as purportedly anticipated, or in the alternative under 35 U.S.C. §103(a) as allegedly obvious over, either U.S. Patent 5,448,552 to Onagi, U.S. Patent 5,638,354 to Nakayama et al. or U.S. Patent 5,933,411 to Inui et al. Claims 2, 3, 9-11 and 15 were rejected under 35 U.S.C. §103(a) as allegedly unpatentable over the background art as applied to claims 1, 8 and 13, and further in view of U.S. Patent 5,477,527 to Tsuchiya et al. Claims 2-5, 9-12 and 14-17 were rejected under 35 U.S.C. §103(a) as allegedly unpatentable over the background art as applied to claims 1, 8 and 13, and further in view of U.S. Patent 5,673,250 to Mieda et al. or U.S. Patent 5,459,712 to Sugaya et al.

Applicants have carefully considered the Examiner's comments and the cited art, and respectfully submit that independent claims 1, 8, 13 and 18 are patentable over the cited art, for at least the following reasons.

Independent claim 1 relates to an optical information recording medium including information tracks extending in a circumferential direction and spaced from each other in a radial direction by lands. A first information track and a second information track are radially adjacent but are radially spaced from each other by a single land. A first phase pit encoding information for the first information track is connected to the second information track and extends radially therefrom toward, but does not reach, the first information track. The first phase pit and the first information track are separated radially by a partition wall. The first phase pit and the first information track have equal depths. The first phase pit is detected by using a differential signal.

Onagi, as understood by Applicants, relates to an optical disk

which includes (i) a plurality of information pits, which are reproducible by a super resolution reproduction, recorded on the plurality of recording tracks in a recording operation of the optical disk, and (ii) a prepit for address reproduction formed in advance to the recording operation on the recording surface with respect to one set of recording tracks adjacent to each other in a radial direction of the optical disk. The Office Action states that Onagi discloses that the prepit is connected on an information track and extends radially across to an adjacent information track but not touching it, which according to the Office Action is separated therefrom by a partition wall.

Nakayama relates to an optical information recording medium having pregrooves and prepits for tracking formed in different positions of central lines.

Inui, as understood by Applicants, relates to an optical disk which has address recording sections, each address recording section having a wobbled part of one of the side walls of a groove.

Tsuchiya, as understood by Applicants, relates to an optical disc having a pit length, a track pitch and a pit width, in respective specified ranges. Tsuchiya is cited in the Office Action for its disclosure of specific track pitch, spot size and pit width values.

Mieda, as understood by Applicants, relates to an optical recording medium having pit rows which are formed on every other boundary section. Sugaya, as understood by Applicants, relates to an optical disk having a recording layer on which information is recorded at specific pitches in the form of pit trains. Mieda and Sugaya are cited in the Office Action for their disclosures of plural pit formats available for maximizing system parameters in order to reduce crosstalk

and increase recording density.

The cited art, as understood by Applicants, fails to disclose or suggest, however, that a phase pit is detected by using a differential signal. Each of the cited references teaches the use of a sum-out signal for detecting a phase pit, and discloses parameter ranges which are optimized based on use of the sum-out signal.

In contrast, as discussed in the present application at, for example, page 15, lines 3-14, parameter ranges are optimized based on use of a differential signal (e.g., push-pull signal).

Applicants find no teaching or suggestion in the cited references of an optical information recording medium wherein a phase pit is detected by using a differential signal.

Accordingly, Applicants respectfully submit that claim 1 is patentably distinct from the cited art. The other independent claims are believed to be patentable over the cited art for at least similar reasons.

If a petition for a further extension of time is required to make this amendment timely, this paper should be considered to be such a petition, and the Commissioner is authorized to charge the requisite fees to our Deposit Account No. 03-3125.

The Office is hereby authorized to charge any additional fees that may be required in connection with this amendment and to credit any overpayment to our Deposit Account No. 03-3125.

If a further telephone interview could advance the prosecution of this application, the Examiner is respectfully requested to call the undersigned attorney.

Entry of this amendment and allowance of this application are respectfully requested.

Dkt. 2271/57219-A

Respectfully submitted,

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1. (Thrice Amended) An optical information recording medium comprising information tracks extending in a circumferential direction and spaced from each other in a radial direction by lands, wherein:

a first information track and a second information track are radially adjacent but are radially spaced from each other by a single land;

a first phase pit encoding information for the first information track is connected to the second information track and extends radially therefrom toward, but does not reach, the first information track;

said first phase pit and said first information track being separated radially by a partition wall; [and]

said first phase pit and said first information track having equal depths; and

said first phase pit being detected by using a differential signal.

8. (Thrice Amended) An optical information recording medium comprising:

circumferentially extending grooves forming information tracks and phase pits forming circumferentially extending preformat tracks;

a partition wall radially separating adjacent information tracks;

Exhibit A

wherein said grooves and phase pits are equally deep, [; and]

phase pits encoding preformat information for a given information track are radially spaced from the groove forming the given information track by a partition wall, and

a phase pit is detected by using a differential signal.

13. (Twice Amended) An optical information recording medium comprising:

circumferentially extending grooves forming information recording tracks, and phase pits encoding preformat information for said tracks;

wherein phase pits encoding preformat information for a given track are radially spaced from that track and separated therefrom by a partition wall and are connected to an adjacent track, [; and

wherein] said grooves and phase pits are equally deep, and

a phase pit is detected by using a differential signal.

18. (Twice Amended) A method of mastering an optical information recording medium comprising information tracks extending in a circumferential direction and spaced from each other in a radial direction by lands, comprising:

exposing a master to a first exposing light beam for forming a first information track and a second information track

that are radially adjacent but are radially spaced from each other by a single land;

exposing said master to a second exposing light beam for forming a first phase pit encoding information for the first information track, said first phase pit being connected to the second information track and extending radially therefrom toward, but not reaching, the first information track, said first phase pit and said first information track being separated radially by a partition wall, and said first phase pit and said first information track having equal depths;

wherein, when a spot diameter of said first exposing light beam is BD1, a spot diameter of said second exposing light beam is BD2, a distance between said first and second exposing light beams is L, and the width of said partition wall in the radial direction is Δ, the values of BD1, BD2, L, and Δ satisfy the relationship:

$$\Delta = L - [(BD1/2) + (BD2/2)]; \text{ and}$$

wherein said first phase pit is detected by using a differential signal.

Exhibit A